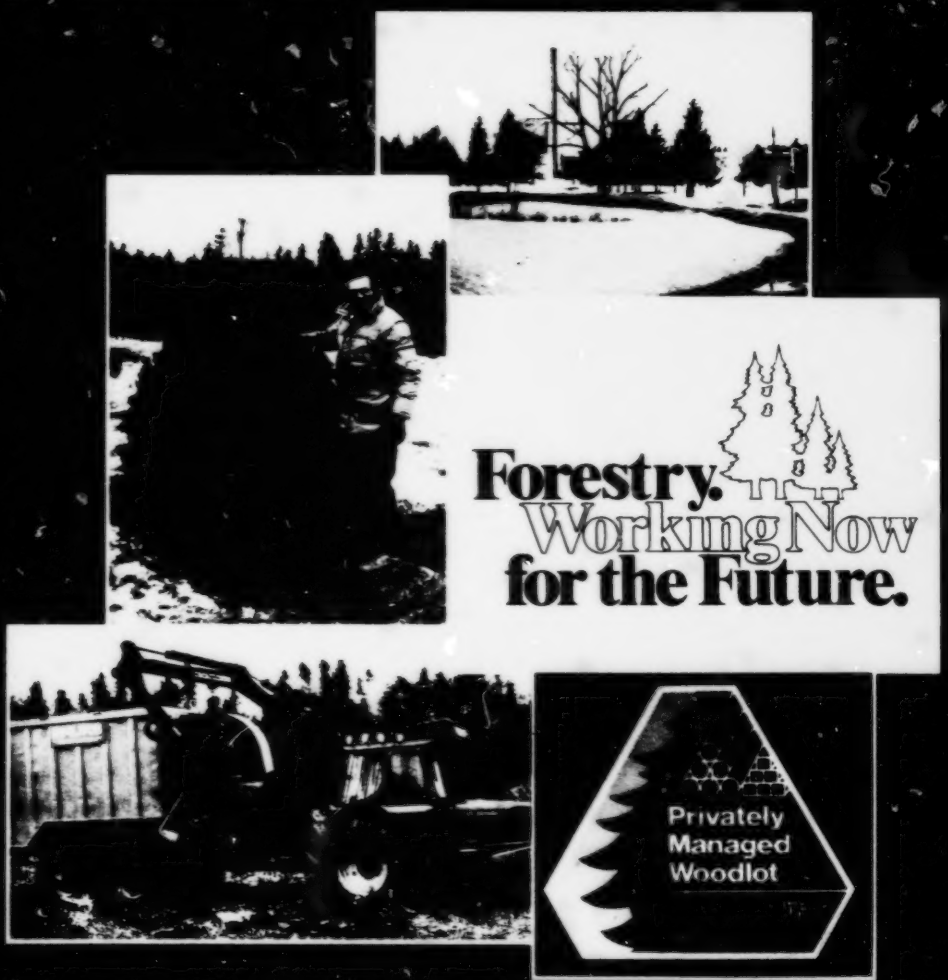
PRINCE EDWARD ISLAND

ANNUAL REPORT

Department of Energy and Forestry
Fiscal Year: April 1, 1985-March 31, 1986



87-04472/

Annual Report for
April 1, 1985 - March 31, 1986

Honourable Allison Ellis, Minister

To His Honour

The Honourable Lloyd G. MacPhail
Lieutentant-Governor of Prince Edward Island

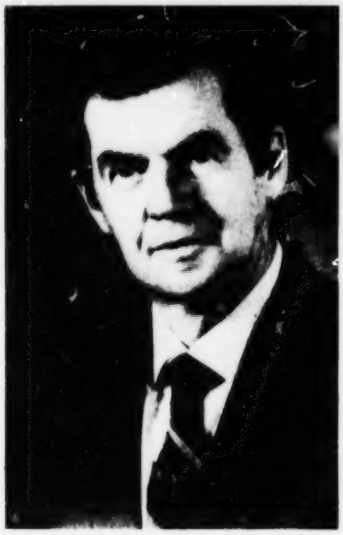
May It Please Your Honour:

I have the honour to submit herewith the Annual Report of the Department of Energy and Forestry for the fiscal year April 1, 1985, to March 31, 1986.

Yours truly,

Allison Ellis

Allison Ellis
Minister of Energy and Forestry



The Honourable Allison Ellis
Minister of the
Deparment of Energy and Forestry
Prince Edward Island

Sir:

I have the honour to submit the Annual Report of the Department of Energy and Forestry for the fiscal year ended March 31, 1986.

Yours truly,

Douglas A. Cameron
Deputy Minister

CONTENTS

Page

I. Structure of the Department 8

II. Energy and Minerals Branch 9
Introduction 9
Intergovernmental Activities 9
Regulatory Matters 9
Research and Planning 10
Oil, Natural Gas and Minerals Branch 10

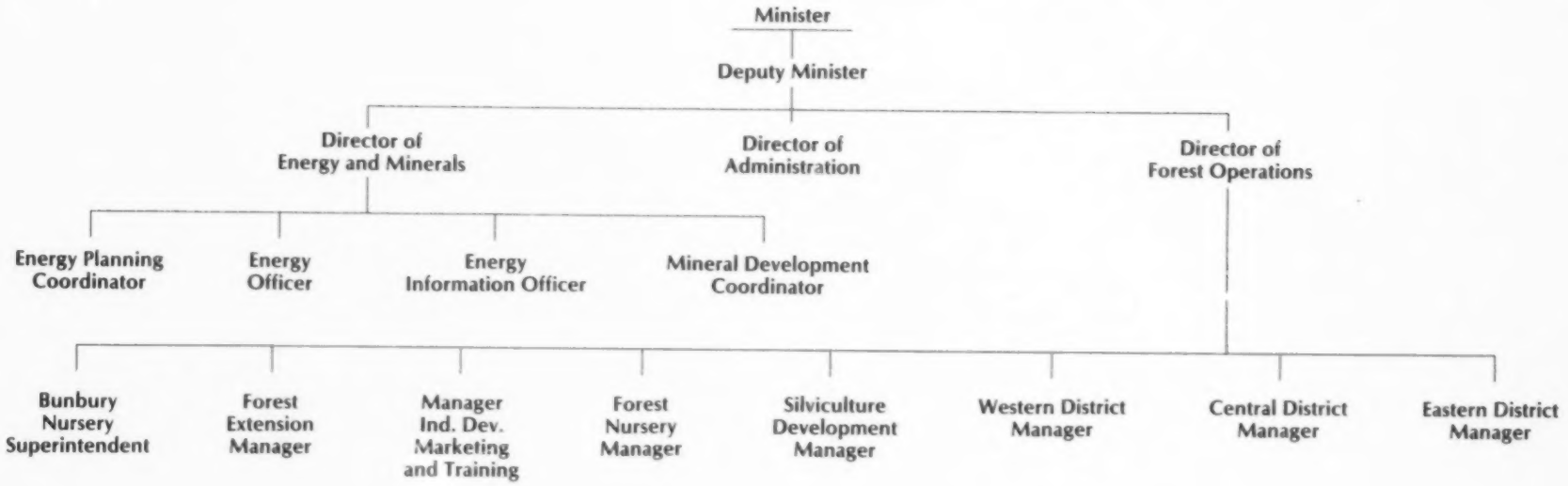
III. Energy and Minerals Branch Programs 12
Alternate Energy Development Program 12
The Electricity Rate Reduction Program 12
Public Outreach Program 13
The Canada-Prince Edward Island Mineral Development Subsidiary Agreement 14

IV. Financial Statement 16

V. Forestry Branch 18
Introduction 18
Forest Extension 18
Woodlot Technology Transfer 19
Industry Development 19
District Operations 19
Biomass Inventory 22
Silviculture Development 23
Seedling Production 23
Bunbury Nursery 24

VI. Forestry Branch Programs 25
Forest Resource Development Agreement 25
Forest Fires 25
Energy Corporation Project 25

I. STRUCTURE OF THE DEPARTMENT



DEPARTMENT OF ENERGY AND FORESTRY

II. ENERGY & MINERALS BRANCH

INTRODUCTION

The Energy and Minerals Branch of the Department of Energy & Forestry is concerned with energy and minerals policy development; the creation and administration of energy and minerals programs' the dispensing of information to the public; and the licencing of oil and natural gas exploration.

The challenge to energy policy makers and energy planners on Prince Edward Island arises from the fact that the Island does not have commercial quantities of conventional forms of energy resources of its own, namely oil and gas. Although there have been some oil finds off-shore and small flows of gas on-shore, these are not economic. However, the Energy and Minerals Branch continues to encourage the exploration for oil and natural gas within and around the Province, but the major thrusts of activities for the Branch have recently become the development of alternative energy sources plus the exploration of ways to reduce the cost of conventional energy products.

Prince Edward Island is rich in forest resources, some of which can be used for energy. Wood is a renewable form of energy and its use has the added benefit of contributing to forest renewal through thinning selective cutting and reforestation.

Through a five-year agreement with the Federal Government, the Energy Branch has continued to develop a viable biomass energy industry. Working with the P.E.I. Energy Corporation, the Department has moved ahead with conversions and installation of new boilers fueled primarily with wood-chips. Wood and other biomass materials have increased to 14% of primary energy supply in Prince Edward Island in 1985.

The Energy Branch in 1985 continued in its efforts to identify ways of reducing the cost of electricity to Island Communities. The Government of P.E.I. was involved in several successful efforts to bring down the cost of residential and commercial electricity in 1985/86:

- Energy Branch staff and lawyers supported Maritime Electric Company, Limited (MECL) before the Federal Court of Canada in arguing against a reversal of the National Energy Board's decision on the right of Maritime Electric to intercept electricity which would otherwise be exported to the U.S. The Federal Court upheld the NEB's ruling. This decision resulted in about 5% saving to Island electricity consumers.
- The Energy Branch was involved in the successful negotiation with the Federal Government to effectively write off the $18 million debt on the submarine cable interconnection.
- The Government of the Province also made an agreement with the Federal Government to help reduce the cost of electricity to Island businesses. The Interim Industrial Electrical Competitiveness Assistance Agreement resulted in lower electricity cost to qualifying businesses and included the appointment of a Special Advisor to find ways of better supplying P.E.I.'s electrical energy needs.

Intergovernmental Activities

The Branch has continued to send representatives to meetings and conferences sponsored by the Northeast International Committee on Energy (N.I.C.E.). Membership in the Interprovincial Advisory Council on Energy (I.P.A.C.E.) has enabled the Government of P.E.I. to have a strong voice in the collective efforts by the provinces, to influence Federal Government Policy on matters of common importance to the various regions.

Energy Branch representatives hold positions on the Maritime Energy Education Coordinating Committee (MEECC), the Committee of Provincial Geologists, the Inter-governmental Working Group on the Mineral Industry, the Coordinating Committee of Maritime Electrical Utilities and the Canadian Ridesharing Federation.

The Branch also acts as a liaison with the Federal Government on energy and mineral concerns.

Regulatory Matters

Before the National Energy Board

In 1985, N.B. Power appealed to the Federal Court a previous NEB decision that N.B. Power must offer to sell to Prince Edward Island electricity at a price no higher than the price charged to customers in the United States. The Province supported Maritime Electric throughout the appeal. The Federal Court upheld the original NEB ruling, resulting in a cost saving to Island consumers of electricity of approximately 5 percent.

Also, in June 1985, the Department submitted a Brief to the National Energy Board in response to the Board's call for submissions regarding the possibility of an omnibus hearing on natural gas export licensing procedures. The Department, on behalf of the Province, expressed views that the quantity of natural gas

surplus to domestic needs be determined and allocated regionally. It was also suggested that the format of future hearings be altered so that frontier gas applications be heard separately.

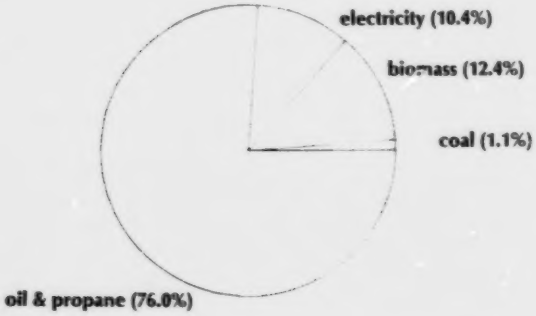
Research and Planning

The Energy and Minerals Branch continued to provide a variety of information to Government and the public about energy use and sources.

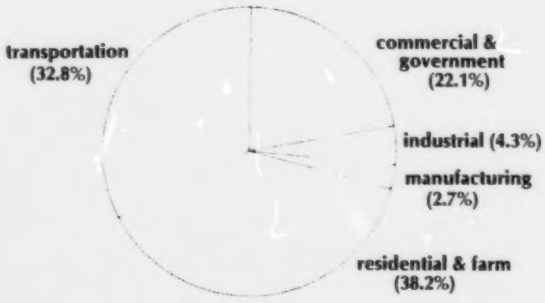
The most concentrated area of research and planning was in support of Government's efforts to reduce the cost of electrical energy to P.E.I. The Branch cooperated with the federal Department of Regional Industrial Expansion to determine an appropriate level and form of assistance to industry on high electrical costs. These studies led to the Interim Industrial Electrical Assistance Agreement which provides rebates to business users of electricity.

Branch staff also worked with the Special Electricity Advisory who was appointed under the Industrial Electricity Agreement to identify the options for P.E.I.'s future electricity supplies.

P.E.I. ENERGY USE BY FORM OF ENERGY
Fiscal Year 1985-1986

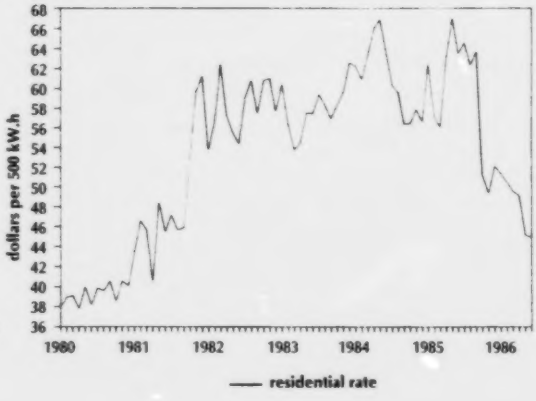


ENERGY USE ON P.E.I. BY ECONOMIC SECTOR
Fiscal Year 1985-1986



Research was also conducted on petroleum marketing with a view to possible amendments to the Petroleum Products Act.

COST OF ELECTRICITY ON P.E.I.
January 1980 - June 1986



Oil, Natural Gas and Minerals

The Energy and Minerals Branch is responsible for the administration and enforcement of the Province's Oil and Natural Gas Act and the Mineral Resources Act. In so doing, it is the responsibility of the Branch to issue oil and natural gas permits and leases as well as mineral licenses and leases. While a number of gas permits were issued during the fiscal year the Department did not issue any mineral licenses or leases.

During the 1985-86 fiscal year, oil and natural gas permits were issued to Chevron Canada Resources Limited, Hudson's Bay Oil and Gas Company Limited, Bro Resources Ltd. and Consultants A.G.R.E.N. Canada Inc. The permits granted the permittees "the exclusive right to do or cause to be done geological and geophysical work and exploratory drillings for all Crown Reserves of oil and natural gas" on approximately 1,247,300 hectares of onshore and offshore land. Most of these companies during the past year spent a considerable amount of time on geophysical reprocessing work.

In July of 1985, Bro Resources Ltd. re-entered the previously abandoned H.B. Fina et al Green Gables #1 Well in an attempt to stimulate an existing gas zone for the purpose of bringing the well into commercial production. Operations at the wellsite were temporarily suspended in early December until the following summer because of impending bad weather and technical problems.

In October of 1985, Cabinet approved the Oil and Natural Gas Act Royalty Order which defined the royalties to be paid for oil, natural gas and sulfur.

During the 1985-86 fiscal year, the Energy and Minerals Branch partially financed the publication of a "Geological Highway Map of New Brunswick and Prince Edward Island" in an attempt to promote the more widespread understanding of the geology of the Island. In addition, the Branch hosted a geological field trip of the Province for members of the Geological Association of Canada and the Mineral Association of Canada.

In September of 1985, the Province hosted the 42nd Annual Mines Ministers' Conference and Committee of Provincial Energy Ministers Meeting. This event provided government and industry officials with the opportunity to become more aware of the geology and mineral potential of the Province.

III. ENERGY AND MINERALS BRANCH PROGRAMS

Alternate Energy Development Program

The Alternate Energy Development Program (AEDP), a joint Federal/Provincial Agreement, is a five-year plan aimed to reduce the Province's dependence on imported fuels. In this program, the use of indigenous Island fuels, such as 'biomass' (principally wood) is promoted. Notwithstanding the economic advantages of using this fuel as an energy source, the potential for local economic development is maximized by the anticipated demand for forestry products.

A maximum of two million dollars will constitute the Province's contribution to this ten million dollar program. Initiatives funded by the Province are: the development of harvesting, processing and transportation systems to ensure a future supply of wood fuels; a feasibility study for a wood-chip fueled district heating system for Charlottetown; and partial sponsorship of research into "Energy Alternatives for Prince Edward Island".

Likewise, the Federal Government has agreed to support installation of industrial/institutional biomass heating systems, as well as research and development of residential woodchip heating systems.

Within one year of its signing (June 1984) the Agreement had already become an effective stimulus to the development of a biomass energy industry in Prince Edward Island. Working hand in hand with the P.E.I. Energy Corporation and the local office of Energy, Mines and Resources, the Province has been able to establish a private sector woodchip supply system by creating a stable and growing market through the rapid conversion of many government and institutional buildings to woodchip-fueled boilers.

District Heating is popular in Europe and some other parts of the world; however, in Canada, Prince Edward Island is one of the first jurisdictions to move forward on planning and installation of district heating systems for homes, businesses and institutional facilities. Furthermore, a district heating system for parts of Charlottetown calls for the use of woodchips as fuel (a renewable and locally available fuel).

A feasibility study for a major District Heating plant to serve Charlottetown was completed in March of 1985. Work also moved ahead, under the guidance and with the financial support of the P.E.I. Energy Corporation, on a woodchip-fired mini-district heating system based at the Prince Edward Home. That installation supplied heat to the Provincial Government office complex during the winter of 1985-86 and was slated for extension to about 13 customers including two hotels and City Hall.

Summerside was also the subject of a District Heating feasibility study.

The Electricity Rate Reduction Program

Implemented in September of 1985, the Electricity Rate Reduction Program provides a decrease of 20% in electrical power rates for the Province's industrial and residential consumers. This reduction was achieved through the combined use of three strategies:

1) The Cable Assistance Program

As of April 1, 1985, a sum of eighteen million dollars remained outstanding on the Province's share of the P.E.I.-New Brunswick cable installation costs. Previously, payment on charges on this debt had been possible by leasing the cable to Maritime Electric for an annual fee of over two million dollars.

According to the terms of the 'Cable Assistance Program', the Government of Canada contributed eighteen million dollars to assist the Province in repaying its debt incurred by installation of the cable. This enabled the Province to lower its cable rental fee to a minimal fee of one dollar annually. In turn, Maritime Electric passed this saving to its customers: originally in the form of a 3% reduction in consumption billings; then, after January 1, 1986, as a reduction of electricity rates by .375 cents per kW.h.

2) The Interim Industrial Competitiveness Assistance Subsidiary Agreement

Formulated as part of the Joint Canada-P.E.I. Economic and Regional Development Agreement (ERDA), this two year 8.5 million dollar program was financed 80 percent federally and 20 percent provincially. The Provincial contribution was not to exceed 1.7 million dollars. The Interim Industrial Competitiveness Assistance Subsidiary Agreement is an attempt to reduce electrical rates to the Province's industrial customers through two approaches:

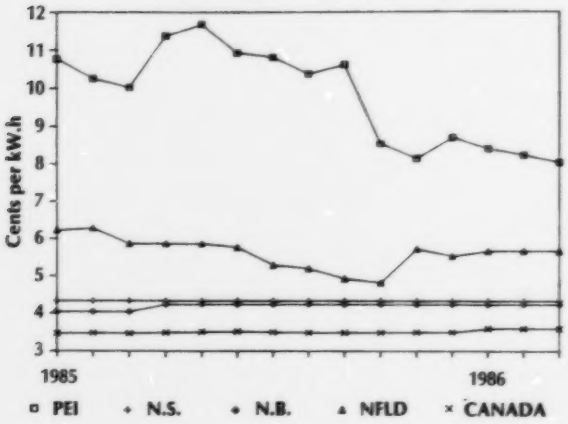
a) provision of up to 8.25 million dollars over two years to fund rebate payments of 17% to qualifying businesses and

b) appointment of a special advisor who is to identify and evaluate alternative sources of electrical power as long-term solutions to high electricty costs.

3) The Residential Rebate Program

Beginning October 1985, the Residential Rebate Program enabled Maritime Electric Co. Ltd. to offer a

INDUSTRIAL ELECTRICITY RATES
Provincial Comparison (1985-1986)



consumption cost credit of 17% to residential and other non-industrial customers over a two-year period. Division of funds obtained through the 'Public Utilities Income Tax Transfer Act' enabled the Province to deliver this program.

Public Outreach Program

As part of its conservation promotion and energy awareness activities, the Energy Branch offers various services to the public of Prince Edward Island.

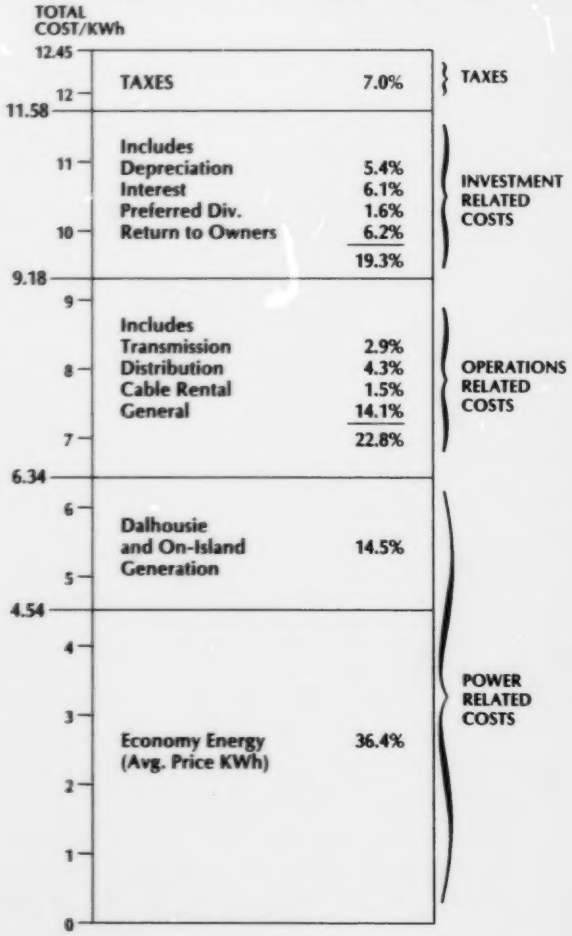
1. **P.E.I. EnerPool:** the EnerPool Program continues to demonstrate the effectiveness of ride-sharing transportation in optimizing energy use. The program began in 1978 and now has four routes, with each route reducing gasoline consumption by up to 47,000 litres per year. The Branch remains active in the Canadian Ride-sharing Federation, a national organization committed to the promotion of ride-sharing.
2. **Furnace Efficiency Kits:** To assist homeowners in assessing their home heating systems, seven furnace efficiency test kits are available on loan, free of charge, from the Energy Branch office in Charlottetown and from three Regional Service Centres (O'Leary, Summerside and Souris). Approximately thirty (30) Island residents took advantage of this service during the 1985-86 period.
3. **Vehicle Efficiency Testing (for Energy Week, 1985):** As an activity to mark the Branch's participation in "Energy Week, 1985" (October 28 - November 1), a Vehicle Efficiency Testing Clinic was held in Charlottetown. During this week, Branch personnel conducted energy efficiency tests on over one hundred vehicles.
4. **Information and Education Programs:**

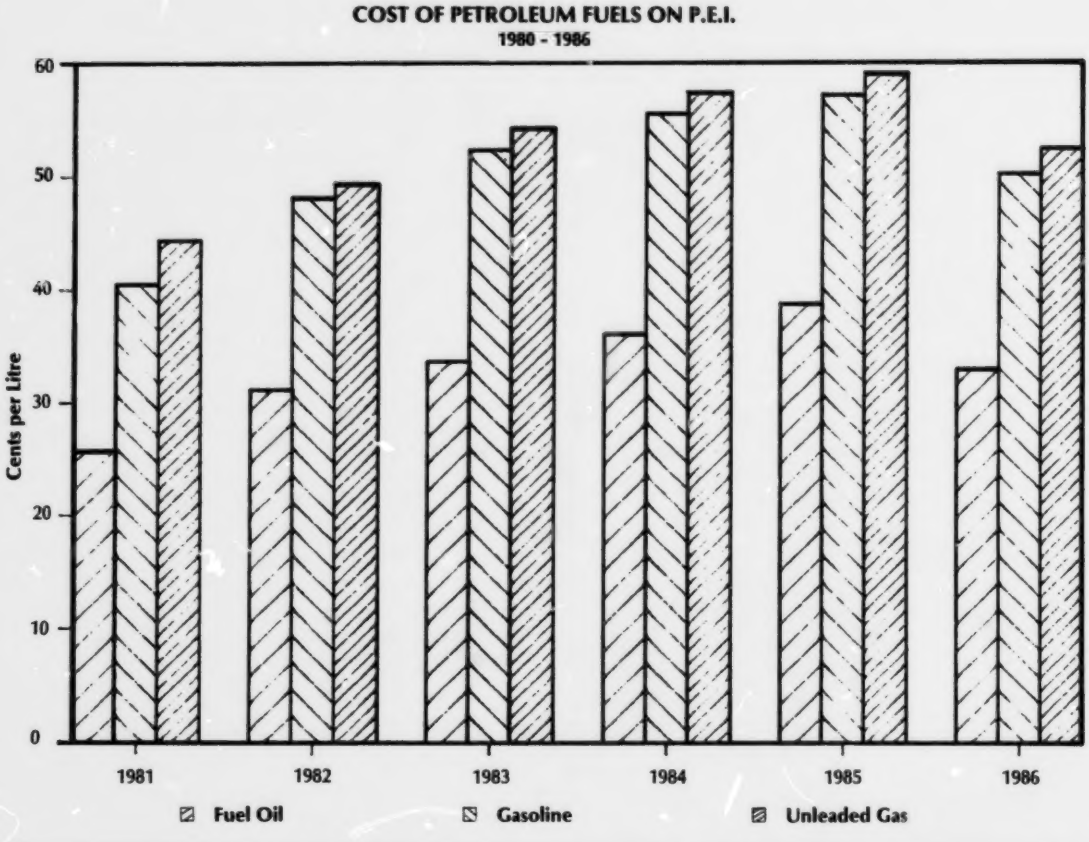
   A. Residential Energy Advisory Service

   The Residential Energy Advisory Service consists of: telephone consultations; mail distribution of literature and resource materials; and discretionary home visits by Branch staff. When warranted, infrared thermography scans to determine heat loss may be conducted for a fee. Over one hundred and fifty inquiries were received in the past year.

Cost of Electricity by Component
For Maritime Electric For 1985

During 1985, power-related costs declined such that the total cost per unit was substantially lower by March, 1986 than is shown here for 1985. Subsequently, the trend has been for energy costs to be considerably lower than 50% of the price per unit.





B. Energy Cost Index

Each month, the comparative costs for fuel oil, gasoline, electricity and propane are recorded and made available to the public upon request.

C. Workshops

During the months of February and March, 1986, the Branch, with the cooperation of the Department of Energy, Mines and Resources, delivered a number of workshops across the Province. These workshops advised hardware and building supply retailers of the proper use of commercially available energy conservation products.

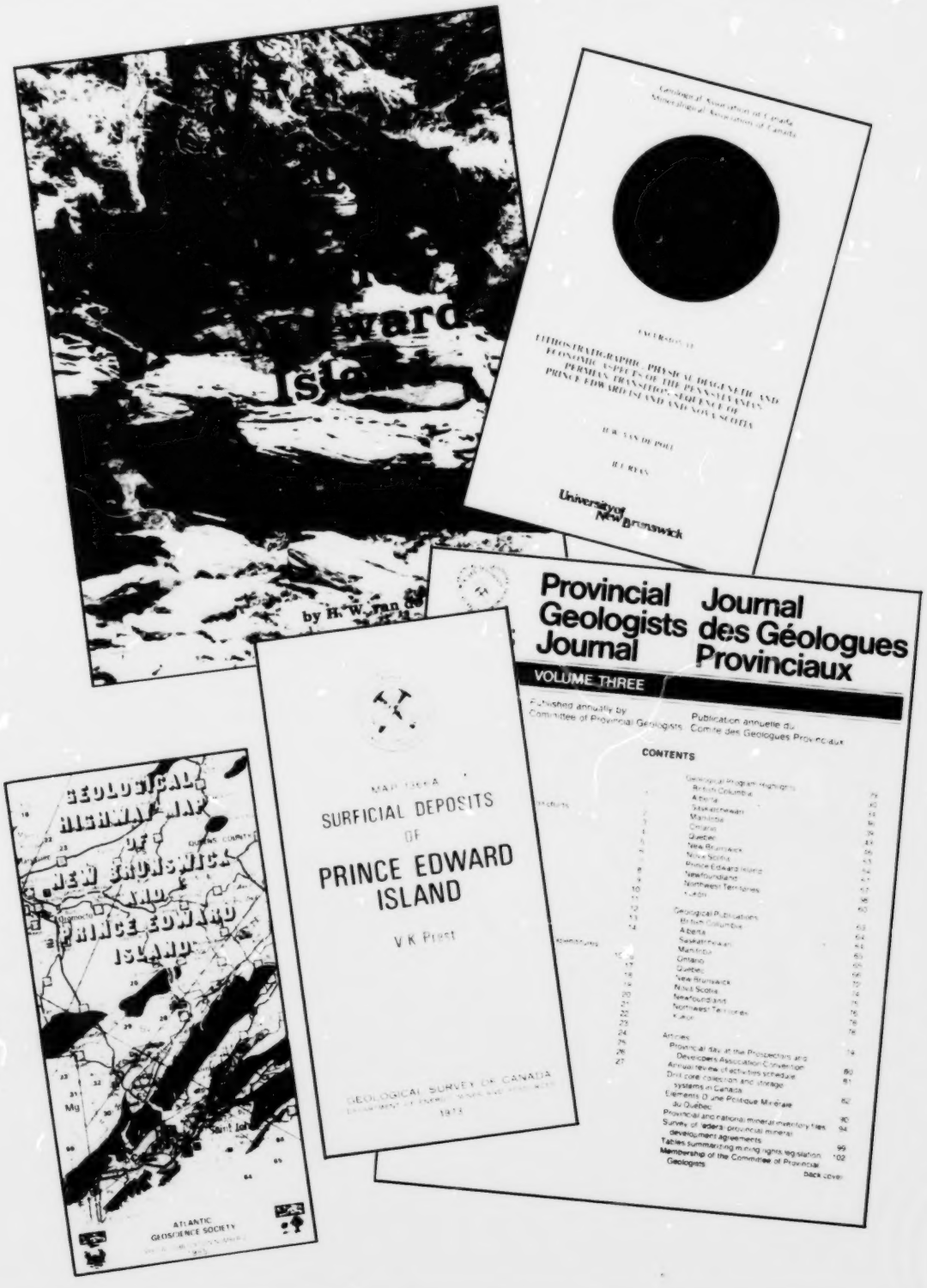
The Canada-Prince Edward Island Mineral Development Subsidiary Agreement

The highlight of the year from the point of view of minerals was the signing in January 1986 of the Canada-Prince Edward Island Mineral Development Subsidiary Agreement. The $300,000 Agreement will permit a comprehensive evaluation of the onshore aggregate resources of the Province which will enhance self-sufficiency in mineral aggregates. The program is being delivered by the Province and is being funded 80 percent by the Federal Government.

The three-year program will involve qualitative and quantitative analysis of both surficial and bedrock aggregate deposits and will include:

a) the collection and assessment of existing information
b) air photo interpretation
c) ground investigation and mapping
d) sampling and testing
e) data storage, analysis and presentation of results.

It is hoped that the results of the evaluation will provide potential developers with basic information on the nature, size and potential of the aggregate resources of the Province.


Provincial Geologists Journal
Journal des Géologues Provinciaux
VOLUME THREE
CONTENTS
SURFICIAL DEPOSITS
OF
PRINCE EDWARD ISLAND
V.K Prest
GEOLOGICAL SURVEY OF CANADA
1978
GEOLOGICAL HIGHWAY MAP
NEW BRUNSWICK
AND
PRINCE EDWARD ISLAND
ATLANTIC GEOSCIENCE SOCIETY

DEPARTMENT OF ENERGY & FORESTRY
EXPENDITURE SUMMARY
FISCAL YEAR 1985-1986

EXPENDITURES		
Departmental Management	$ 439,496	
		$ 439,496
Energy and Minerals Branch		
Branch Management	265,023	
Canada/P.E.I. Energy Agreement	—	
Maritime Electric Tax Rebate	1,500,000	
E.R.D.A. Energy Sub-Agreement	124,172	
Electrical Rate Relief Program	5,760,739	
E.R.D.A. Mineral Sub-Agreement	10,183	
		$ 7,660,117
Forestry Branch		
Branch Management	$1,242,603	
Bunbury Nursery	170,249	
Firefighting	46,474	
Hedgerow/Shelterbelt	22,568	
Headquarters Administration	74,677	
Extension	167,049	
Woodlot Technology Transfer	45,495	
Silviculture Development	124,822	
Industry Development	73,852	
Biomass Inventory	92,529	
Seedling Production	298,058	
Eastern District - Crown Land	217,550	
Central District - Crown Land	202,193	
Western District - Crown Land	192,418	
Eastern District - Administration	140,186	
Central District - Administration	138,545	
Western District - Administration	110,427	
Forestry Branch Capital	127,916	
		$ 3,487,611
Department Total		$11,587,224

DEPARTMENT OF ENERGY & FORESTRY
REVENUE SUMMARY
FISCAL YEAR 1985-1986

REVENUES		
Departmental Management		$ —
Energy and Minerals Branch		
Gas & Oil Licenses	$ 155,212	
Fees and Services	18,195	
Sales (Miscellaneous)	158	
E.R.D.A. Energy Sub-Agreement	15,373	
Electrical Rate Relief	1,302,729	
E.R.D.A. Mineral Sub-Agreement	8,146	
		$ 1,499,813
Forestry Branch		
Branch Management	224,288	
Bunbury Nursery	130,051	
Hedgerow/Shelterbelt	4,587	
Headquarters-Administration	65,716	
Extension	146,556	
Woodlot Technology Transfer	40,043	
Silviculture Development	129,441	
Industry Development	64,877	
Biomass Inventory	80,797	
Seedling Production	261,570	
Eastern District - Crown Land	191,313	
Central District - Crown Land	177,111	
Western District - Crown Land	169,328	
Eastern District - Administration	122,411	
Central District - Administration	121,160	
Western District - Administration	96,761	
Seedling Sales	4,232	
Eastern District Crown (Sale of Wood)	5,413	
Central District Crown (Sale of Wood)	3,130	
		$2,038,785
Department Total		$3,538,598

V. FORESTRY BRANCH

Introduction

The key responsibilities of the Forestry Branch are the delivery of a comprehensive forest management assistance program for woodlot owners, the management of 25,000 hectares of Crown land, research and development of new technology for wood production and processing, and the provision of training, marketing and technical advisory services to the forest industry. The management of Bunbury Nursery and the coordination of forest fire control operations are also the responsibility of the Forestry Branch.

Approximately 48% of Prince Edward Island's land base is forested, representing an area of 276,000 hectares. The development of a viable forest industry, based on a healthy and productive resource, represents both a challenge and an opportunity. Island forest soils are considered to be among the most productive in Canada. However, due to insect and disease problems, past harvesting and land clearing practices, and indifference on the part of many landowners, today's forest industries often suffer from having only poor quality wood resources available to them. Lack of private investment capital and markets to finance the needed upgrading of forest industry production capabilities continues to be a problem for local forestry enterprises.

Highlights for 1985-86 included a feasibility study on the upgrading of Island sawmills, the planting of 1.54 million tree seedlings, the spending of $1.08 million on private land management and the implementation of a major public information campaign. This information program included construction of signs along well travelled roads, which identified managed forests, advertising of opportunities in the forest industry in various media and the completion of six demonstration woodlots.

Forest Extension

The completion of six demonstration woodlots, two in each district, highlighted 1985-86 for the Forest Extension Section of the Department of Energy and Forestry. Each woodlot has signs, walking trails and an accompanying descriptive brochure that helps to introduce and explain the various forest management techniques demonstrated.

Seventeen highly visible roadside plantations and thinnings were identified with signs to draw public attention to forest management techniques which were applied to these areas. In addition, a signage program identifying the Forestry District Offices and Demonstration Woodlots was completed. The first 50 signs which publicize "Privately Managed Woodlot"

One of the many high profile signs placed near public roads to draw attention to forestry management practises.

were distributed to individuals participating in the Forest Resource Development Agreement. This type of promotion is intended to give the landowners recognition for their management efforts as well as draw public attention to the program.

Approximately 15,000 children and adults attended performances of the forestry play "May the Forest Be With You" at Elementary and Junior High Schools, campgrounds and community fairs during the spring and summer of 1985. Originally commissioned for the Ontario Forestry Association, this play was adapted to Island conditions and presented with cooperation from the Island Community Theatre Group and the Canadian Institute of Forestry, P.E.I. Subsection.

Members of the cast of "May the Forest Be With You" performed across the Province.

The Forestry Branch initiated a major media advertising campaign during the fiscal year which carried the message that "Forest Management Works".

Instruction in the use and maintenance of chainsaws was provided for 80 casual users. Basic forest worker training was also provided to 130 workers from Kati-

mavik, U.I. Section 38 and Energy Corporation job creation programs.

Staff members from Forest Extension and Industry Development taught a course introducing forestry and safe chain saw use to students from Montague Senior High School. Approximately 15 students completed the course which covered subjects such as tree identification, silviculture methods and tours of several forest industries across the Island.

An Open House was held during National Forest Week at the J. Frank Gaudet Tree Nursery. Boy Scouts, Cubs, Guides, Beavers and the general public toured the nursery complex and fire equipment storage areas.

Woodlot Technology Transfer

The design, construction and testing of two new pieces of extraction equipment was the main thrust of the Woodlot Technology Transfer Section in 1985-86. Field testing of the tractor-mounted Back Rack and Bogie-wheel Tipping trailer were conducted at the Valleyfield Demonstration Woodlot.

Equipment blueprints were distributed to 20 clients. Another 12 people borrowed several pieces of equipment such as the Yankee Yarder and the ATC trailer, for testing on their woodlots.

The fourth annual Small Woodlot Equipment Demonstration was held for the first time in the Eastern Forestry District. Approximately 400 people viewed demonstrations of Christmas tree shearing, horse logging techniques, and operating techniques for several pieces of small extraction equipment.

Industry Development Marketing and Training

A study entitled "The Feasibility of Upgrading the Quality of Island Sawmills" was undertaken for the Department in 1986. Technical assistance was provided to sawmills in Bloomfield and Hebron re mill modernizations. Staff also were involved in the design and installation of a waste wood chipping and storage system at a sawmill in Rose Valley.

The silviculture worker training program, conducted by Holland College with input from Energy and Forestry staff, graduated 45 people in 1985-86. Twenty-three other forest workers received upgrading and business management courses in Charlottetown and Wellington through programs conducted by Forestry Branch staff.

Sales of pulpwood were below average in 1985-86 with only 10,000 cords being shipped. Production of softwood lumber remained at last year's level due to the continued closure of the Henderson Sawmill and an influx of competitively priced lumber from mainland mills.

Financial assistance through the Department of Industry's Small Business Incentives Program was provided to a new wooden fence manufacturing business and to a manufacturer of Christmas wreaths. The annual survey of Christmas tree retailers in Charlottetown and Summerside was conducted by staff of the Industry Developlment Marketing and Training Section.

District Operations

Delivery of both private and Crown land management programs is the responsibility of the three district offices located at Southampton, Beach Grove and Wellington. Technical assistance is provided to woodlot owners in the development of management plans suited to the composition and potential of their woodlots and the owners' management objectives.

Spending levels for private land management exceeded last year's total by almost 60%, with expenditures reaching $1,008,000 in fiscal year 1985-86. Increased activity by silvicultural contractors, more emphasis on site preparation for the 1986 planting season and the removal of dead and/or dying old-field white spruce stands, led to the dramatic increase in private land spending.

The tractor mounted Back Rack is put through its field trial by Doug MacMaster of the Woodlot Technology Transfer Section.

TABLE #1
TOTAL APPLICATIONS DURING 1985-86

DISTRICT	# OF APPLICATIONS	# OF PLANS WRITTEN	# OF PLANS SIGNED
Western	170	139	121
Central	101	138	109
Eastern	188	120	109
TOTAL	459	397	339

TABLE #2
CANADA/PRINCE EDWARD ISLAND
FOREST RESOURCE DEVELOPMENT AGREEMENT
CUMULATIVE TOTALS TO DATE

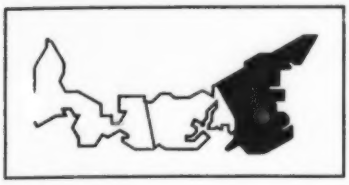
DISTRICT	# OF APPLICATIONS	# OF PLANS WRITTEN	# OF PLANS SIGNED
Western	670	579	527
Central	611	568	434
Eastern	708	568	459
TOTAL	1,989	1,715	1,420

TABLE #3
CANADA/PRINCE EDWARD ISLAND
FOREST RESOURCE DEVELOPMENT AGREEMENT
1985-86 WORK COMPLETED
PRIVATE LAND

ACTIVITY	WEST	CENTRAL	EAST	TOTAL
Roads (km.)	18.2	14.4	31.0	63.6
Boundary (km.)	70.0	34.0	44.7	148.7
Site Prep. (ha.)	267.0	198.0	400.0	865.0
Plantation Maint. (ha.)	134.0	48.0	64.7	246.7
Stand Improvement (ha.)	109.0	213.0	195.0	517.0
Stand Rec. (ha.)	30.0	94.0	193.0	317.0

TABLE #4
CROWNLAND ACTIVITY 1985-86

ACTIVITY	WEST	CENTRAL	EAST	TOTAL
Roads (km.)	3.0	5.0	12.0	20.0
Site Prep. (ha.)	69.0	21.0	66.0	156.0
Plantation Maint. (ha.)	12.0	31.0	21.0	64.0
Stand Improvement (ha.)	3.5	4.0	5.0	12.5
Harvesting (ha.)	51.0	1.0	33.5	85.5
Harvesting (cords)	98.0	310.0	330.0	738.0
Cones (Bushels)	168.0	252.0	255.0	675.0



Eastern District

In 1985-86, 120 new management plans were written for Eastern District woodlot owners. One hundred and nine of these were signed, bringing the District's three year total to 568 plans written and 459 plans signed.

Private land incentives totalled $420,000 which were paid to woodlot owners for the work completed in 1985-86. This work included 31 kilometers of road, 400 hectares of site preparation, 195 hectares of stand improvement and an additional 193 hectares of stand reclamation.

Each district is also responsible for management of the Crown lands within their boundaries. The Eastern District staff completed 66 hectares of site preparation, 12 kilometers of roads and 5 hectares of stand improvement on Crown land. Staff also collected 255 bushels of cones from various seed sources for use in future seedling production at the forest nursery.

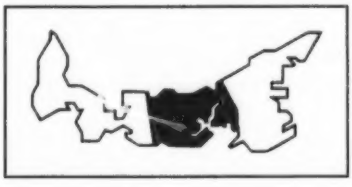
Fuelwood and commercial harvests on crown lands totalled 33.5 ha. Approximately 330 cords of dead and diseased wood cut by government crews were sold by tender.

The District conducted a chipping trial of the Bruks 800 CT full-tree chipper. The trial was funded under the Wood Supply Systems program of the Alternate Energy Development Agreement. The machine was tested on several Crown and private land sites throughout the district and was evaluated on productivity, operating costs and environmental input. This type of equipment subsequently became the whole-tree chipping system which supplied the major wood biomass burning facilities on Prince Edward Island.

Two young scouts are shown planting seedlings as part of the "Trees for Canada" program.

District staff participated in a Community School program in Montague at which a Basic Woodlot Management Course was given. Staff helped the Boy Scouts of Canada plant 6,800 seedlings as part of the "Trees for Canada" project and toured various community service, youth and school groups through the Demonstration Woodlots in New Harmony and Valleyfield.

The 4th Annual Small Woodlot Equipment Demonstration Day was held in Valleyfield. Static displays and parking facilities were located on the property of Wilfred Nicholson while the working sites were situated on the Valleyfield Demonstration Woodlot. Approximately 450 people visited the static displays with 250 of them taking the woodlot tour.



Central District

The Central District contains the most heavily populated areas in the province and the smallest forest area. In 1985-86 staff of the Central District wrote 130 new plans and signed another 109. This brought their three-year total to 568 plans written and 434 plans signed.

Work completed on private land under the Forest Resource Development Agreement included 316,000 seedlings which were planted on 128 ha. of private woodlands. Boundary line establishment exceeded objectives (34 km. completed) while stand improvement work fell short of expectations (213 ha. completed).

Other work completed on private land included 14.4 km. of roads, 198 ha. of site preparation, 48 ha. plantation maintenance and 94 ha. of stand reclamation. Incentives paid to woodlot owners for this work totalled $280,000 for the Central District in 1985-86.

District staff responsible for Crown land operations coordinated the construction of 5 km. of new roads and three new bridges. Thirty-one hectares of plantation were sprayed with Round-up and/or simazine to

control grasses, weeds and brush. Four ha. of stand improvement were completed also.

A total of 139 ha. of plantations established in 1985 and 148 ha. planted between 1980 and 1984 were assessed by Central District staff using a new method. This new plantation assessment method, which is to be adopted by the other districts, was the subject of a very successful staff workshop.

Foresters and technicians also taught a course in woodlot management at the Charlottetown Rural Community School. Work also continued at the Demonstration Woodlots in Brookvale and Auburn. New signs were erected and existing signs updated.

Western District

The Western District has the second largest forest area in the Province. In the past year staff have written 139 new forest management plans of which 121 have been signed. This brings the three year total to 579 plans written and 527 plans signed.

Work completed on private land included 18.2 kilometers of roads constructed, 70 km of boundaries marked, 267 ha. prepared for planting and 109 ha. of stands improved. Approximately 310,000 trees were planted on 125 hectares of private woodlots. Incentives paid out to woodlot owners in 1985-86 totalled $313,000.

Crown land havesting resulted in 51 ha. of commercial and fuelwood cuts being completed and 98 cords of dead and diseased wood sold by tender. Crews working out of the Wellington Office collected 168 bushels of cones for future seedling production and completed 3.5 ha. of stand improvement work. The herbicide Round-up was sprayed on 12 ha. of plantation to control grasses and weeds.

Seedlings planted on Crown lands totalled 107,000, of which Boy Scouts planted 11,000. Pick-up orders accounted for an additional 28,000 trees. Site preparation was completed on 69 ha., 34 ha. were treated mechanically and 35 ha. chemically.

Due to the many wetland sites in the Western District, geo-textile fabric was purchased to help stabilize several roadbeds. Three kilometers of new roads and 16 kilometers of boundary lines were located and constructed.

The District assisted with the Hakmet TT-1000 full-tree chipping trial. This project was funded under the Wood Supply Systems Program of the Alternate Energy Development Agreement and involved District staff in the evaluation of the chipper's performance on typical Island sites.

Work continued on the development on the Demonstration Woodlots at Camp Tamawaby and Foxley River. Signs were erected and walking trails cut. Staff also participated in the Three Oaks Community School in Summerside, teaching a course on woodlot management.

The Western District office sign.

Biomass Inventory

Completion of the 20-year Forest Resource Development Plan, including a new cost/benefit analysis, was one of the major efforts of the past year. This plan should provide a proper blueprint for the long term management of P.E.I.'s forest resource.

Site index curves were completed for white and black spruce, balsam fir, eastern larch and white and yellow birch. Total and merchantable volume equations were produced for these species and for red and sugar maple.

Due to the increasing importance to the Province of woodchips as an energy fuel, the development of a scaling procedure for estimating biomass volume from whole tree piles was undertaken. Field-testing proved impractical as the sampling intensity was too high. Another method involving the estimating of volumes of standing biomass proved more accurate and was successfully field-tested with the Bruks 800 CT and the Hakmut TT1000 whole-tree chippers.

Previous attempts in using conventional aerial photography to detect clear cut areas had proved ineffective, but encouraging results were received from the field-testing of the Satellite Thermatic Mapper "TM". Accurate assessment of harvesting is important in the updating of forest inventory information and industrial development projections.

Silviculture Development

Work continued in 1985-86 on the establishment of clonal seed orchards across the Province. A new clone bank was planted at the former Beach Grove Nursery and an eastern larch seed orchard is nearing completion at the J. Frank Gaudet Tree Nursery in West Royalty. Planting trials using 1,000 yellow birch, 300 white pine, 200 red pine and 150 white ash were established at Stanhope, in the P.E.I. National Park.

Plus tree selections continued with 65 new trees being accepted, 52 of which were found on private land. White spruce with 29 plus tree selections was the most common specie, followed by selections of red spruce with 18, white pine with 11, eastern larch with 6 and red oak with 1.

For the first time, scions for use in genetic seed orchard establishment were collected under a contract with a private company. Grafting of these scions to root stock produced 905 white spruce, 348 eastern larch and 315 white pine seedlings, for a total of 1568 trees to be put into provincial seed orchards. Root stock production for the 1987 grafting season totalled 9,000 seedlings.

An additional 28 new permanent sample plots were established for use in evaluating various thinning methods and spacings. By remeasuring each plot at five year intervals and analyzing the data, the best thinning method for each site can be determined.

Hedgerow/shelterbelt planting also falls within the responsibilities of Silviculture Development. Seedlings are planted to help protect farm fields from wind erosion and streams from excessive siltation due to rapid run off of precipitation.

Planting totals were as follows:

Hedgerow/shelterbelt plantings:

Eastern	-	12,700 seedlings on 24 sites
Central	-	25,400 seedlings on 28 sites
Western	-	56,000 seedlings on 43 sites
Total	-	94,100 seedlings on 95 sites

Seedling Production

Located in West Royalty, the J. Frank Gaudet Tree Nursery produces both container and bareroot seedlings for reforestation programs on private and Crown lands. The main production facilities include two gutter-connected, double layer polyethylene greenhouses with a total growing space of 3,700 square meters (approximately 1 acre), and 35 ha. of farm land for the production of bareroot stock.

Red pine, white pine, Austrian pine, white spruce, black spruce, eastern larch, hybrid poplar and balsam fir are the species produced.

During the 1985 planting season, 1.54 million trees were shipped for planting across the Province. These trees were planted on private and Crown lands by contractor and government crews.

TABLE #5
SEEDLINGS PLANTED UNDER THE
FOREST RESOURCE DEVELOPMENT AGREEMENT
1985-86

District	Private Land	Crown Land	Total
West	310,000	135,000	445,000
Central	316,000	108,000	424,000
East	470,000	94,300	564,300
Nursery	—	15,300	15,300
Hedgerow	94,100	—	94,100
Employment Proj.	2,155	—	2,155
Total	1,192,255	352,600	1,544,855

TABLE #6
SEEDLINGS SHIPPED SPRING, 1985

Species	Number
Red Pine	242,077
White Pine	50,456
Austrian Pine	44,911
White Spruce	441,927
Black Spruce	348,047
Eastern Larch	178,649
Hybrid Poplar	28,200
Balsam Fir	210,588
Total	1,544,855

TABLE #7
SEEDLINGS PRODUCED FOR 1986 PLANTING SEASON

Species	Number
Red Pine	535,000
White Pine	60,000
Austrian Pine	45,000
White Spruce	490,800
Black Spruce	530,000
Eastern Larch	180,800
Hybrid Poplar	30,000
Balsam Fir	200,000
Total	2,071,600

Production of seedlings for reforestation begins with seed collection from high quality trees. The seed is stored in refrigerated units until it is needed, thus insuring that the seed does not germinate too early and that there will be adequate supplies of viable seed in years of poor seed production.

Containerized stock for planting in 1986 were germinated in the spring of 1985. These seedlings were grown in the greenhouse under controlled conditions until late August, when they were moved outside to a holding area for over-wintering.

Bareroot stock is grown in outdoor beds which are seeded in late May. These beds are watered, fertilized, and the seedlings thinned over several years to produce larger, more vigorous trees for reforestation on difficult sites. Beds seeded in 1985 will produce seedlings for the 1988 planting season.

Bunbury Nursery

Revenue from the sale of ornamental nursery stock was the highest ever recorded by the Bunbury Nursery in 1985-86, in spite of the wet spring.

Demand for information and classes on landscaping and gardening continued to be greater than staff could handle. Insect and disease problems received the highest priority during the growing season, with most other requests being handled on a first-come, first-served basis.

Shrub evaluation trials continued in 1985 with the Nursery staff testing 102 varieties of shrubs, trees, evergreens and groundcovers. Bedding plant trials also continued at the local Agriculture Canada Research Station, in conjunction with the Greenhouse and Ornamental Committee of the Atlantic Crops Committee.

Importation of ornamental elm trees during the past year from areas infected with Dutch Elm disease accentuated the need for changes in Federal regulations prohibiting transportation of such trees into the Province. The recommended changes will be implemented by the 1986 shipping season, thus closing existing loopholes.

The Nursery Superintendent was appointed to a steering committee at the request of the Atlantic Provinces Nursery Trades Association. This committee will have the task of preparing guidelines and selecting a firm to conduct a marketing study of the landscape industry in the Atlantic region.

Snow fencing within the seedling holding areas help hold snow cover which protects overwintering seedlings.

VI. FORESTRY BRANCH PROGRAMS

Forest Resource Development Agreement

In 1983, the Province entered into the Forest Resource Development Agreement with the Federal government. This five year agreement will put 20.144 million dollars, (13.688 million through the Canadian Forestry Service and 6.456 million through the Department of Energy and Forestry) into the province's economy.

Program Description	Five-Year Budget ($MILLIONS)
1. Private Land Management	4.494
2. Crown Land Management	4.040
3. Forest Development	
3.1 Forest Extension	.995
3.2 Woodlot Technology Transfer	.641
3.3 Silviculture Development	2.172
3.4 Industry Development	.492
3.5 Forest Biomass Inventory	.442
3.6 Seedling Production	1.626
4. Administration	5.242
Total	**20.144**

The objectives of the Forest Resource Development Agreement are:

1. To permit the development of a wood fuel industry to double the annual consumption of wood fibre from 168,000 cubic meters (70,000 cords) to 336,000 cubic meters (140,000 cords) by 1988. Thus, potentially decreasing fuel oil imports by 111,000 barrels/year.
2. To permit the Province to attain a level of production in sawn and processed lumber of 21 million board feet/year.
3. To increase direct employment in the forest industry from the present 400 person-years to 600 over the five year agreement.
4. To permit the development of income and employment in associated industries such as consulting, silviculture contracting, Christmas trees, crafts and Maple Syrup.

Forest Fire Summary

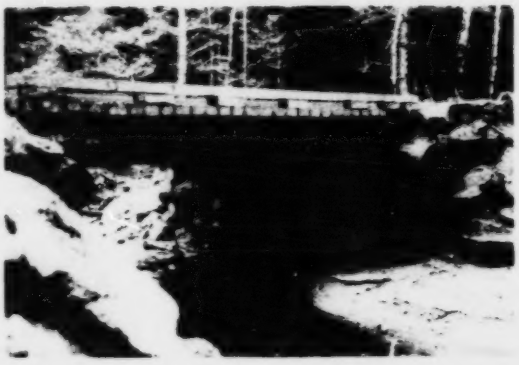
The number of forest fires was up in 1985, while the area burnt was down. These fires consumed 181.2 ha. in the three districts in 53 separate incidents.

The largest fire was one in Dundee, that consumed 70.0 ha. This fire occurred in a brush/cutover area and, even though no forest was lost, it proved persistent as it flared up after the initial fire was out.

Energy Corporation Projects

Crews from the P.E.I. Energy Corporation continued to work on Crown land management projects such as stand improvement, road and boundary establishment, harvesting and plantation maintenance.

A total of 124 people received employment for an average 10 weeks each. Low quality wood was chipped for burning at various woodchip heating units across the Province while higher quality pulpwood, fuelwood and logs were sold by tender.



Bridge construction techniques taught by Forestry personnel led to a number of excellent structures being put in place on private and Crown woodlots.

A Christmas tree demonstration area within the Valleyfield Demonstration Woodlot is used to illustrate management practises.

TABLE #8
WORK COMPLETED BY
THE ENERGY CORPORATION
1985-86

Activity	East	Central	West	Total
Roads & R.O.W. (km.)	4.8	2.4	1.8	9.0
Boundary (km.)	—	2.0	—	2.0
Plant. Maint. (ha.)	27.8	—	4.1	31.9
Stand Improvement (ha.)	1.5	5.5	2.5	9.5
Stand Rec. (ha.)	2.7	14.3	—	17.0
Harvesting (cords)	428.8	892.3	127.0	1,448.1

Dale MacIsaac of the N.S. Department of Agriculture and Marketing conducted a forestry staff training workshop on sugar bush development on the property of Mr. Ron Carmichael of the Klondike Road.

Signs of seedling delivery trucks promoted greater awareness of forestry activities.

Smokey the Bear welcomed visitors to the Forestry Information Trailer at local fairs and exhibitions.